

IN THE CLAIMS:

Please amend claims 1, 55, 68, 82 and 83 as follows.

This listing of claims will replace all prior versions, and listings of the claims in the application.

Listing of the claims

1. (Currently Amended). A nucleic acid molecule that comprises a coding sequence operably linked to regulatory elements, wherein said coding sequence that encodes a human CD80 mutant protein comprises at least one of 80V, 80tm and 80ct and is free of all or part of the CD80 C region;

wherein said CD80 mutant that is free of all or part of the CD80 C region ; ~~possesses costimulatory activity of wild type CD80 and does not provide the negative signal associated with wild type CD80 C region interactions with CTLA4,~~ said protein comprises either 80V or 86ct or both and optionally comprises one or more of 86C, 80tm, 86tm, 80ct and 86ct wherein:

80V is the variable domain of human CD80 or a ~~functional~~ fragment thereof;

86V is the variable domain of a human CD86 or a ~~functional~~ fragment thereof;

86C is the C domain of human CD86 or a ~~functional~~ fragment thereof;

80tm is the transmembrane region of human CD80 or a ~~functional~~ fragment thereof;

86tm is the transmembrane region of a human CD86 or a ~~functional~~ fragment thereof;

80ct is the cytoplasmic tail of human CD80 or a ~~functional~~ fragment thereof; and

86ct is the cytoplasmic tail of human CD86 or a ~~functional~~ fragment thereof;

wherein said human CD80 mutant protein possesses costimulatory activity of wild type CD80 and does not provide the negative signal associated with wild type human CD80 C region interactions with human CTLA4.

2. (Previously presented). The nucleic acid molecule according to claim 1 wherein:

80V is the variable domain of human CD80;

86V is the variable domain of human CD86;

86C is the C domain of human CD86;

80tm is the transmembrane region of human CD80;

86tm is the transmembrane region of human CD86;

80ct is the cytoplasmic tail of human CD80; and

86ct is the cytoplasmic tail of human CD86.

3-9. Cancelled

10. (Previously presented). A plasmid comprising a nucleic molecule according to claim 1.

11. (Previously presented). A plasmid according to claim 10 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

12. (Previously presented). A composition comprising a plasmid according to claim 10 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

13. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule according to claim 1.

11 15. Cancelled.

16. (Withdrawn). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 1.

17. (Withdrawn). The method of claim 16 wherein said immunization is prophylactic.
18. (Withdrawn). The method of claim 15 wherein said immunization is therapeutic.
19. (Withdrawn). The method of claim 16 wherein said immunogen is an allergen.
20. (Withdrawn). The method of claim 16 wherein said immunogen is a pathogen antigen.
21. (Withdrawn). The method of claim 16 wherein said immunogen is an antigen associated with an autoimmune disease.
22. (Withdrawn). The method of claim 16 wherein said immunogen is an antigen associated with a hyperproliferative disease.
- 23-40. Cancelled
41. (Previously presented). A composition comprising a plasmid according to claim 11 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.
42. (Previously presented). The nucleic acid molecule according to claim 1 wherein said protein comprises part of human CD80 C region.
43. (Previously presented). A plasmid comprising a nucleic acid molecule according to claim 42.
44. (Previously presented). A plasmid according to claim 41 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

45. (Previously presented). A composition comprising a plasmid according to claim 44 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

46. (Previously presented). A composition comprising a plasmid according to claim 43 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

47. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule according to claim 42.

48. (Withdrawn). The methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 42.

49. (Withdrawn). The method of claim 48 wherein said immunization prophylactic.

50. (Withdrawn). The method of claim 48 wherein said immunization is therapeutic

51. (Withdrawn). The method of claim 48 wherein said immunogen is an allergen.

52. (Withdrawn). The method of claim 48 wherein said immunogen is a pathogen antigen.

53. (Withdrawn). The method of claim 48 wherein said immunogen is an antigen associated with an autoimmune disease.

54. (Withdrawn). The method of claim 48 wherein said immunogen is an antigen associated with a hyperproliferative disease.

55. (Currently Amended). The nucleic acid molecule according to claim 1 that comprises a coding sequence operably linked to regulatory elements, wherein said coding sequence encodes a human CD80 mutant protein that comprises a ~~functional~~ human CD80 V region, a functional human CD80 tm and a ~~functional~~ human CD80 ct region, and is free of a functional C region by the absence of all or part of the a human CD80 C region, ~~wherein said human CD80 mutant protein does not provide the negative signal associated with wild type human CD80 C region interactions with human CTLA4.~~

56. (Previously presented). A plasmid comprising a nucleic molecule according to claim 55

57. (Previously presented). A plasmid according to claim 56 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

58. (Previously presented). A composition comprising a plasmid according to claim 57 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

59. (Previously presented). A composition comprising a plasmid according to claim 56 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

60. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule according to claim 55.

61. (Withdrawn). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 55.
62. (Withdrawn). The method of claim 61 wherein said immunization is prophylactic.
63. (Withdrawn). The method of claim 61 wherein said immunization is therapeutic.
64. (Withdrawn). The method of claim 61 wherein said immunogen is an allergen.
65. (Withdrawn). The method of claim 61 wherein said immunogen is a pathogen antigen.
66. (Withdrawn). The method of claim 61 wherein said immunogen is an antigen associated with an autoimmune disease.
67. (Withdrawn). The method of claim 61 wherein said immunogen is an antigen associated with a hyperproliferative disease.
68. (Currently Amended). The nucleic acid molecule according to claim 55 wherein said coding sequence encodes a human CD80 mutant protein that comprises amino acids 43 123 of human CD80 as the ~~functional~~ human CD80 V region, amino acids 243 263 of human CD80 as the ~~functional~~ human CD80 tm and amino acids 264 288 of CD80 as the ~~functional~~ human CD80 ct region.
69. (Previously presented). The nucleic acid molecule according to claim 68 wherein said coding sequence encodes a human CD80 mutant protein that is free of a functional C region by the absence of part of the human CD80 C region.
70. (Previously presented). A plasmid comprising a nucleic molecule according to claim 68.

71. (Previously presented). A plasmid of claim 70 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

72. (Previously presented). A composition comprising a plasmid according to claim 71 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

73. (Previously presented). A composition comprising a plasmid according to claim 70 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

74. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule according to claim 68.

75. (Withdrawn). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 68.

76. (Withdrawn). The method of claim 75 wherein said immunization is prophylactic.

77. (Withdrawn). The method of claim 75 wherein said immunization is therapeutic

78. (Withdrawn). The method of claim 75 wherein said immunogen is an allergen.

79. (Withdrawn). The method of claim 75 wherein said immunogen is a pathogen antigen.

80. (Withdrawn). The method of claim 75 wherein said immunogen is an antigen associated with an autoimmune disease.

81. (Withdrawn). The method of claim 75 wherein said immunogen is an antigen associated with a hyperproliferative disease.

82. (Currently amended) 'The nucleic acid according to claim 55 wherein said coding sequence encodes part of the CD80 C region.

83. (Currently amended) The nucleic acid according to claim 2 wherein said coding sequence encodes part of the CD80 C region.

84. (Previously presented). A plasmid comprising a nucleic molecule according to claim 83.

85. (Previously presented). A plasmid according to claim 84 further comprising coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

86. (Previously presented). A composition comprising a plasmid according to claim 85 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

87. (Previously presented). A composition comprising a plasmid according to claim 84 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

88. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule according to claim 83.